

## SPECIFIC CHEMICAL HAZARDS

### Pesticides, Herbicides and Fungicides

#### INTRODUCTION

This chapter contains guidance pertinent to the application and handling of pesticides, including fungicides, herbicides, rodenticides and insecticides. At Fermilab, the application of regulated pesticides is done by FESS personnel who have obtained the appropriate level of licensing from the state of Illinois, or by properly licensed subcontractors managed by FESS. Fermilab adheres to the principles of Integrated Pest Management in order to minimize pollution and adverse environmental impacts. This chapter is not applicable to household products that do not require a license to apply, e.g., Raid™, Cutters™, or any such products that are generally available through the Fermilab stockroom or in a retail store.

#### Integrated Pest Management

Integrated Pest Management (IPM) is an approach to controlling biological pests that interfere with human activity. The interference can take the form of economic loss, health risk, aesthetics, or other impacts. The following principles should be used to select an appropriate course of action that is effective, yet minimizes waste and protects health:

1. Understand the pest that you are controlling.
  - a. Identify the specific pest to be controlled, either because it is present or is likely to be present based on history, science, and other relevant evidence.
  - b. Understand the ecology of the pest so that the most vulnerable life cycle stage(s) can be engaged efficiently.
  - c. Understand the magnitude of the infestation. How many pests are there? Over what area? How long is the infestation expected to persist?
2. Establish an action threshold. Make a rational decision about how severe an infestation of the pest cannot be tolerated. As a first step, evaluate the economic cost of the control mechanism against the expected loss due to the pest. Additional, less tangible costs should also be considered, e.g., health implications of pesticides, pollution of surrounding environments (including non-target species), aesthetics, etc.
3. Consider the full range of available control technologies, and the costs and benefits of each. While chemical pesticides may appear to be the most efficient, in many cases natural substances, biocontrols, or non-chemical means may be available and may be preferable when the full cost is considered.
4. Consider a combination of controls. In some cases, combining more than one control is much more effective than one alone. For example, minimal use of traps or toxins may be effectively combined with physical removal.

5. For every pest control action, the end result should be evaluated for effectiveness, cost, and efficiency.

## SCOPE

This chapter pertains to all areas of the Laboratory where there is, or could be, pesticide application.

## APPLICABLE CODES

Illinois Administrative Code (IAC) Title 8, Agriculture and Animals, Part 250, Illinois Pesticide Act.

40 CFR 165 Regulations for the Acceptance of Certain Pesticides and Recommended Procedures for the Disposal and Storage of Pesticides and Pesticides Containers.

## DEFINITIONS

Licensed applicator - The responsible person in charge of all pesticide application. Also, the licensed applicator supervises the application of pesticides performed by licensed operators.

Licensed operator - A person trained and licensed in the application of pesticides under the supervision of a licensed applicator.

Pesticides - a general term which includes fungicides, herbicides, rodenticides and insecticides.

## RESPONSIBILITIES

ES&H Section - acts as the liaison with all government agencies, DOE and Fermilab, and provides assistance and guidance as required. The ES&H Section will assist and arrange for the disposal of pesticides which are determined to be waste material. The ES&H Section will conduct fit testing and issue respirators to licensed operators and applicators as required.

Facilities Engineering Services Section - is responsible for assuring compliance with applicable codes and regulations governing the application, use and storage of pesticides applied at Fermilab. This includes pesticides applied by either Lab personnel or subcontractors.

## REFERENCES

Fermilab ES&H Manual Chapter [8021](#), "Regulated Chemical Waste Disposal."

Fermilab ES&H Chapter Chapter [5103](#), "Respiratory Protection."